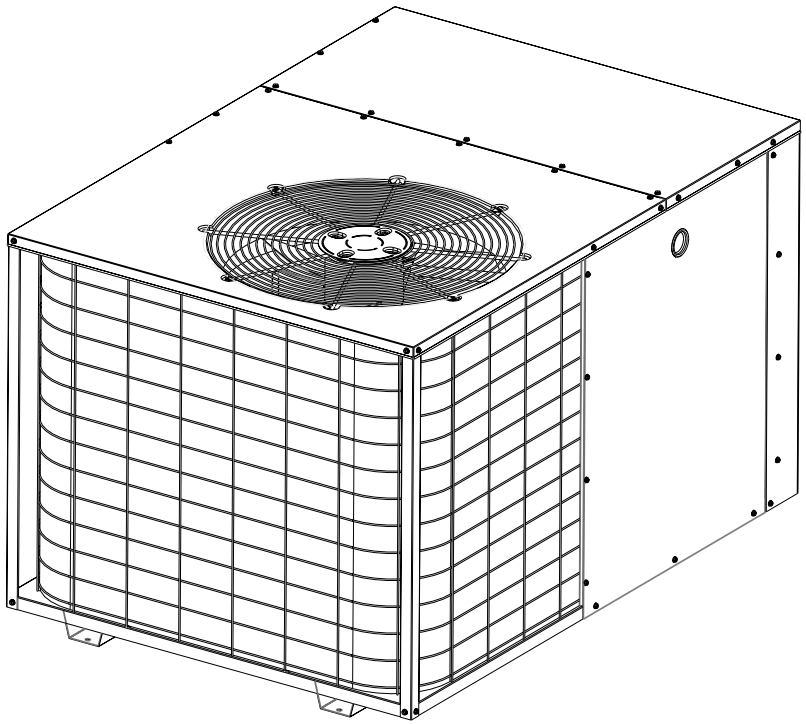
USER'S MANUAL AND INSTALLATION INSTRUCTIONS

P3RX Series - Export Models
Single Package Air Conditioner



Single Package Air Conditioner

IMPORTANT

Read this owner information to become familiar with the capabilities and use of your appliance. Keep this with literature on other appliances where you have easy access to it in the future. If a problem occurs, check the instructions and follow recommendations given. If these suggestions don't eliminate your problem, call your installing contractor or distributor in your area.

INTRODUCTION

Most any air conditioner will keep you cool. Our NORDYNE air conditioner was designed to do it efficiently. Efficiency means less cost to you while keeping you comfortable.

WHY YOUR NORDYNE AIR CONDITIONER WORKS SO WELL, SO QUIETLY

1. Air is cooled by a large evaporator coil. Moisture is also removed from the air by this same coil.
2. Air is then delivered through the main duct, via registers, into your home.
3. Return air is drawn through the return register.
4. This air enters the unit, passes through the evaporator coil, is cooled and dehumidified. Then the cycle begins again.

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SECTION 1. OWNER INFORMATION

OPERATING INSTRUCTIONS

To Turn On Air Conditioner

If you have a heating/cooling thermostat:

1. Set the system switch to "Cool."
2. Set the thermostat at the temperature level you desire.
3. Turn the power on. Your air conditioner should start as soon as room temperature rises above the setting on the thermostat.

If you have one thermostat for heating and another for cooling, they must be interlocked to prevent simultaneous operation (See Figure 1):

1. Turn the heating thermostat to its lowest possible setting.
2. If the cooling thermostat has an "On/Off" switch, turn it "On."
3. Set the cooling thermostat to the desired temperature.
4. Turn the power on. Your air conditioner should start when room temperature exceeds the thermostat setting.

To Shut Off Air Conditioner

If you have a heating/cooling thermostat:

1. Turn the system switch to "Heat" or "Off."
2. Turn the thermostat to the desired heating temperature setting.
3. If you are turning your air conditioner off for the winter or an extended period, shut off the power to the air conditioner.

If you have one thermostat for heating and another for cooling, they must be interlocked to prevent simultaneous operation (See Figure 1):

1. Turn your cooling thermostat "Off" or to its highest setting.
2. Turn the heating thermostat to the desired temperature.
3. If you are turning your air conditioner off for the winter or an extended period, shut off the power to the air conditioner.

BEFORE YOU CALL A SERVICEMAN

Let your serviceman check your system at the start of each air conditioning season. He will make sure it's working right, clean or change filters and make any needed adjustments.

In addition, follow these simple rules:

1. Never run your system without filter. If you do, the cooling coils will get dirty and may become clogged.
2. Set your thermostat at the comfort level you wish -- and then leave it alone. Let it control the operation of the air conditioning system. If you get chilly, turn it up a degree at a time until comfort is restored.
3. It takes longer for an air conditioner to cool your dwelling than it does for your furnace to heat it. So . . . don't turn the unit on and expect a dramatic drop in temperature, at least not right away. If your home is hot and humid, the temperature will drop slowly.
4. Check your filters every ten days in summer to see if they are dirty. To keep them clean, use a mild solution of detergent and water on washable types. Replace non washable filters.
5. Keep your outdoor condenser coil clean. You can hose it down when it gets dirty.

If your air conditioner isn't working:

1. Make sure the fuses are not blown or that your circuit breakers are on.
2. See that your thermostat is set at the desired temperature and that your system's switch is on "Cool."
3. For free air flow, make sure your return register is not covered and that the filter is clean.
4. Check the outdoor condenser coil and make sure it is clean and not clogged with grass or leaves.

If your air conditioner still isn't working, call your nearest distributor.

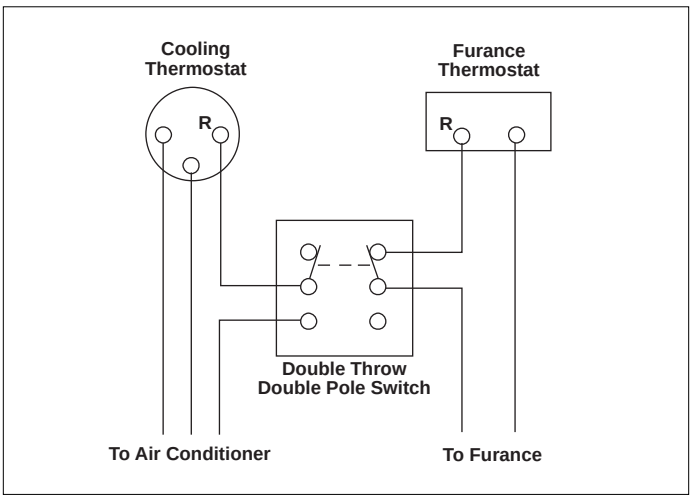


Figure 1. Thermostat Interlock System

SECTION 2. INSTALLER INFORMATION

GENERAL

Read the following instructions completely before performing the installation.

These instructions are for the use of qualified personnel specially trained and experienced in the installation of this type of equipment and related system components. Some states require installation and service personnel to be licensed. Unqualified individuals should not attempt to interpret these instructions or install this equipment.

The single packaged air conditioners are designed for outdoor installation only and can be readily connected into the existing high static duct system of a manufactured home. The only connections needed for installation are the supply and return ducts, the line voltage, and thermostat wiring. A complete air conditioning system consists of:

- Single Package Air Conditioner
- Manufactured Home Fittings Kit
- Unit Fittings Kit
- Thermostat

The single package air conditioner is completely assembled, factory wired, and factory run tested. The units are ready for easy and immediate installation.

PRE-INSTALLATION CHECK

Before any installation is attempted, the cooling load of the area to be conditioned must be calculated and a system of the proper capacity selected. It is recommended that the area to be conditioned be completely insulated and vapor sealed.

The installer should comply with all local codes and regulations which govern the installation of this type of equipment. Local codes and regulations take precedence over any recommendations contained in these instructions. Consult local building codes and the National Electrical Code (ANSI CI) for special installation requirements.

The electrical supply should be checked to determine if adequate power is available. If there is any question concerning the power supply, contact the local power company.

IMPORTANT: DO NOT PLACE UNIT UNDER THE HOME.

Inspecting Equipment: All units are securely packed at the time of shipment and, upon arrival, should be carefully inspected for damage. Claims for damage (apparent or concealed) should be filed immediately with the carrier.

INSTALLATION

1. UNPACK THE UNIT

It is recommended that the unit be unpacked at the installation site to minimize damage due to handling.

⚠ CAUTION:

Do not tip the unit on its side. Oil may enter the compressor cylinders and cause starting trouble. If unit has been set on its side, restore to upright position and do not run for several hours. Then run unit for a few seconds. Do this three or four times with five minutes between runs.

a. Remove the plastic bands from around the unit.
b. Unfold the top and bottom cap flanges.
c. Carefully remove the top cap and tube.

2. SELECT THE BEST LOCATION FOR THE AIR CONDITIONING UNIT (See Figure 2)

- Select a solid, level position, preferably on a concrete slab, slightly above the grade level, and parallel to the home.
- The hot condenser air must be discharged up and away from the home, and if possible, in a direction with the prevailing wind.
- There should be no obstructions within twelve inches of the coil which could block the movement of the condenser air.
- Do not place the unit in a confined space.
- If practical, place the air conditioner where it and the ducts will be shaded from the afternoon sun when the heat load is greatest.
- Try to select a site for the unit that is as close as possible to the proposed return grille location.
- Keep in mind that the length of the supply and return ducts should be kept to a minimum with no sharp radiused bends.

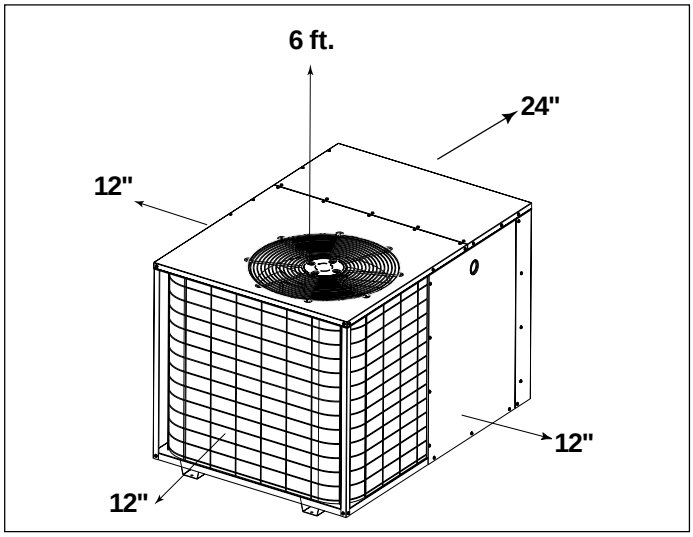


Figure 2. Minimum Unit Clearances

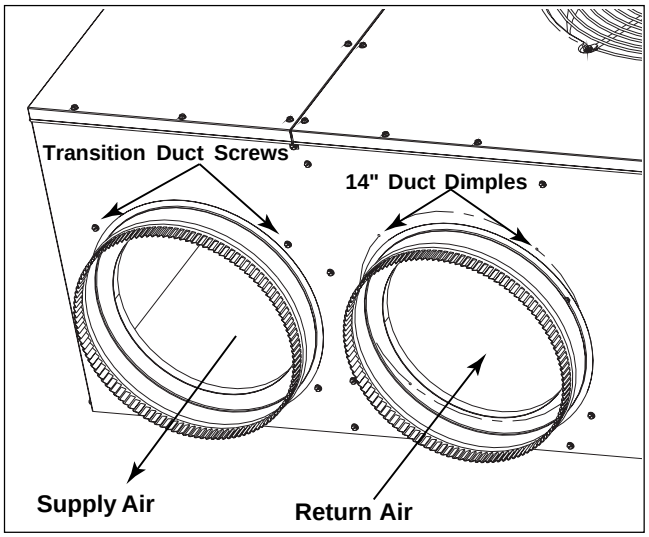


Figure 3. Return and Supply Air Fittings

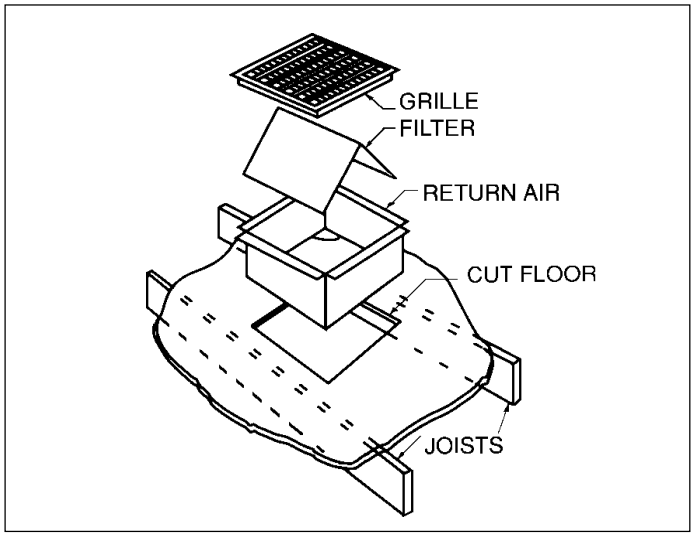


Figure 4. Return Air Box

3. INSTALL THE RETURN AND SUPPLY AIR FITTINGS ON THE UNIT (See Figure 3)

The supply and return fittings are shipped in the supply duct. They attach to the unit openings with a flange and bead arrangement, secured with two furnished screws. Note: For ease of access, install fitting before positioning unit in final location.

SUPPLY DUCT

Position the supply duct collar so the edge of the unit opening fits between the flange and the bead. Overlap the collar ends keeping the small screw holes underneath. Align the holes in the crimped area and install one screw.

Note: It may be necessary to loosen the four screws that hold the transition duct in order to install the supply fitting. Re-tighten when installation is complete.

Tap collar as necessary to ensure engagement with unit opening and install second screw. Tighten first screw. Rotate collar clockwise so joint is near three o'clock position.

RETURN DUCT

The 12" return duct is installed in the same manner as the supply duct. If the unit has a 14" return, follow these instructions.

Model	Return Dia. (in)
P3RA-024( )	12
P3RA-030( )	12
P3RA-036( )	12
P3RA-042( )	12
P3RA-048( )	14
P3RA-060( )	14

Align the slots with the holes in the collar and install two screws. Position the collar over the opening and align the four notches in the collar with the four dimples in the panel. Using self-drilling screws (10-16x.5) attach the collar to the rear panel.

4. LOCATING AND INSTALLING THE RETURN AIR ASSEMBLY (See Figure 4)

To avoid complications, locate and install the return air assembly first. The return air box with grille and filter (Figure 4) should not be located in heavy traffic areas like hallways or center of rooms. A good spot is in a corner or under a table, if a minimum two inch clearance is available. If desired, the return opening can be located inside a closet with louvered doors that have an open area equal to or greater than the 12" x 20" grille furnished. The return air grille can be placed in the wall of a closet and the air ducted into the filter box through a boxed-in area at the closet floor level. Make sure the filter is readily accessible.

After determining the location of the return air opening, start the installation from under the home by cutting a small hole in the fiber underboard to determine how the floor joist location will affect cutting the opening needed for the box. Floor joists generally are located on 16" centers, leaving 14-3/8" between joists. After measuring the return air box (approximately 12-1/4" x 14-1/4"), cut the hole through the floor so that the box will fit between the floor joists. Care should be taken when cutting through carpeting to avoid snags. In most installations it will be necessary to cut a similar hole in the fiberboard directly under the hole in the floor. However, if the floor is more than ten inches deep, it will only be necessary to cut a hole for the collar on the return air box or for the insulated duct.

Set the box into the opening and fasten with screws or nails. Put the filter and return air grille in place.

5. LOCATING AND INSTALLING THE SUPPLY DAMPER(S) (See Figure 5)

⚠ CAUTION:

When a home is not equipped with a make-ready kit by the manufacturer, means must be provided to prevent simultaneous operation of the heating and cooling units. A heat/cool thermostat is available for this purpose.

When installing this air conditioning system in conjunction with a furnace, a damper must be installed in the furnace base assembly to prevent cold air being discharged around the heat exchanger. Damage to the heat exchanger and asphyxiation may occur if a damper is not installed.

Check with the furnace manufacturer for damper requirements. Failure to install the required furnace damper may invalidate code agency listing and limited warranty on the furnace.

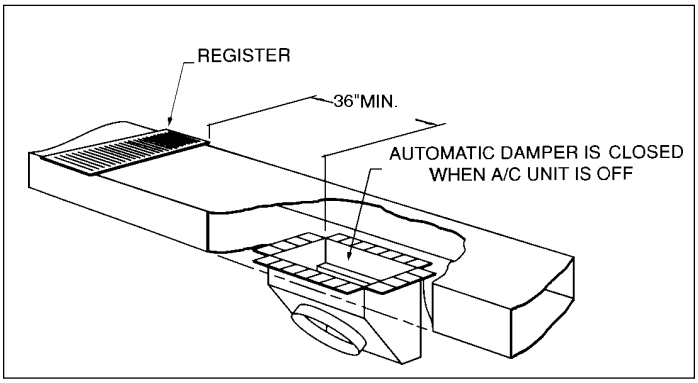


Figure 5. Supply Damper

When locating the supply damper(s), carefully check floor joists, axles, wheels, and frame members that could interfere with the installation of the damper or flexible duct. Ideally, the damper should be located in the bottom of the main duct, forward of center of the home, at least three feet from the nearest register. The round supply opening in the slanted side of the damper should face the side of the home where the air conditioner is located. To locate the center of the heat duct, first cut a small hole in the fiberboard below the duct at the desired location. After locating the duct center, cut a hole approximately 3/4" larger than the damper opening in the fiberboard. Cut a 9-1/8" x 13-1/8" hole in the duct and bend over all tabs flat on the inside of the heat duct. After inserting the damper into the duct, bend over all tabs flat on the inside of the heat duct. Seal the opening between the fiberboard and damper or flexible duct.

DUCTING SYSTEM

DUCT REQUIREMENTS

The supply duct system, including the number and type of registers, will have much more effect on the performance of an air conditioning system than any other factor. The duct must be sufficiently large to conduct an adequate amount of air to each register.

THE AIR CONDITIONING OUTPUT OF THE SYSTEM WILL NOT COOL THE HOME IF THE AIR IS LOST TO THE OUTSIDE THROUGH LEAKS IN THE DUCT SYSTEM. ALSO, DUCTS WHICH ARE COLLAPSED OR RESTRICTED BY FOREIGN OBJECTS WILL PREVENT ADEQUATE AIR FLOW.

Note: For highly resistive duct systems it may be necessary to add an additional return air duct and or supply to achieve maximum performance and prevent coil icing and refrigerant flood back.

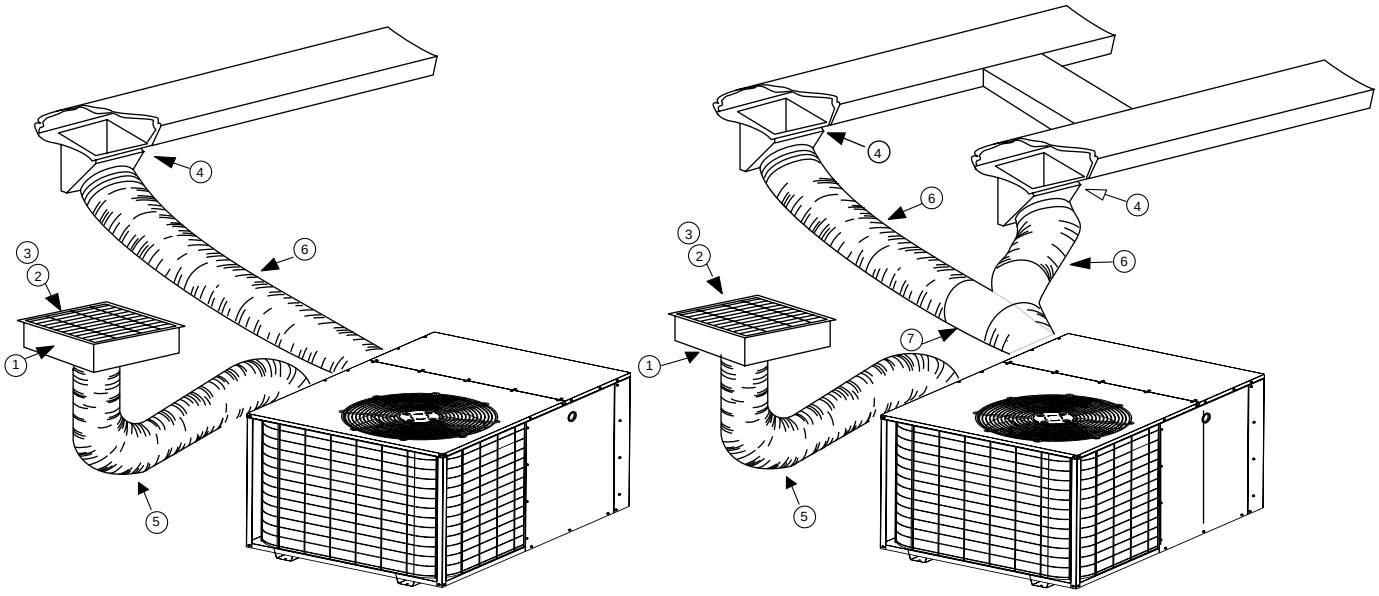
CONNECTING THE RETURN AND SUPPLY AIR FLEXIBLE DUCTS

a. The supply duct for all units is twelve inches in diameter. The return duct may be 12" or 14" diameter depending on unit size. (See Table on page 5)
b. The flexible ducts can be connected to the corresponding fittings with the clamps provided with the ducts. Note: All connections should be leak tight or a loss in cooling capacity will result.
c. The flexible ducts may be cut to the required length, see instructions packed with duct. Keep all ducts as short and straight as possible. Avoid sharp bends.
d. Ducts may be spliced with sheet metal sleeves and clamps. (See Ducting Installation Accessories below.)
e. Once the inner duct is connected to the proper fitting, the insulation and plastic sleeve should be pulled over the connection and clamped.
f. For double-wide homes or for special applications, a Y fitting is available to divide the supply air so it can be ducted to different areas of the home for more efficient cooling. Note: The Y fitting should be insulated for maximum performance.

⚠ WARNING:

Running a furnace with a damaged heat exchanger could cause a fire or asphyxiation.

TYPICAL APPLICATIONS



SINGLE WIDE APPLICATION **DOUBLE WIDE APPLICATION**

Ref. No.	Description
1	12" x 20" Return Air
2	16" x 20" Air Filter
3	12" x 20" Grille
4	Supply Damper
5	12" or 14" Diameter Flex Return Duct
6	12" Diameter Flex Supply Duct
7	12" x 12" x 12" “Y” Fitting

Figure 6. Typical Applications

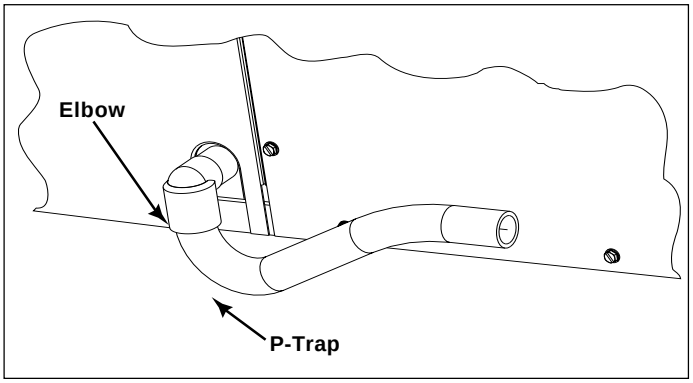


Figure 7. Drain Trap

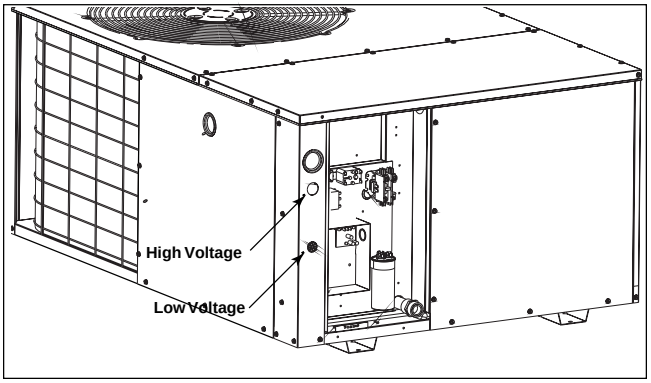


Figure 8. Power Entry

CONDENSATE DRAIN (SEE FIGURE 7)

A 3/4" condensate fitting extends out of the side of the unit. The drain trap, shipped in the electrical compartment, must be installed to prevent water from collecting inside the unit. Thread the elbow provided with the unit into the drain connection until hand tight. Install the trap into the fitting and seal the joint. Make sure it is level. Route the condensate from the trap to a suitable drain. Any connecting tubing or hose must be below the trap level for proper drainage.

⚠ WARNING:

Turn off electrical power before servicing controls. Severe electrical shock may result unless power is turned off. Unit must be installed in compliance with the National Electrical Code (NEC) and local codes.

ELECTRICAL CONNECTIONS

1. ELECTRICAL SERVICE

High Voltage

a. Install a branch circuit disconnect of adequate size per NEC. Locate the disconnect within sight of the unit.
b. Extend leads through power wiring hole provided. Connect L1 and L2 directly to the contactor. (See Figure 8). For 3 Phase models, connect L1, L2, and L3 directly to the 3-pole contactor.
c. Ground the air conditioning unit using the green grounding screw provided in the control panel.

Low Voltage

a. Route 24v control wires through the sealing grommet near the power entrance.
b. Connect the control wires to the leads in the low voltage area. (See Figure 9).

2. OVERCURRENT PROTECTION

In general, the best fuse or breaker for any air conditioner is the smallest size that will permit the equipment to run under normal use and service without nuisance trips. Such a device, sized properly, gives maximum equipment protection.

The principal reason for specifying a time delay type is to prevent nuisance trips when the unit starts.
In the event that a fuse does blow or a breaker trips, always determine the reason. Do not arbitrarily put in a larger fuse or breaker and do not, in any case, exceed the maximum size listed on the data label of the unit.

3. LOCATING THE THERMOSTAT

Locate the thermostat away from drafts and slamming doors and place it where there is a free flow of air. Mount on an inside wall approximately five feet from the floor.

Do not locate near a lamp, kitchen range, direct sunlight, or in line with air flow from supply registers.

a. **Connect Cooling Thermostat:** The cooling thermostat available for use with this system is equipped with a selector switch. To shut down the air conditioner, set the selector switch to the OFF position. Connect the red and yellow wires from the unit to the R and Y terminals respectively on the thermostat subbase. Connect the green wire to the yellow wire at the unit. See the instruction sheet packed with the thermostat for detailed methods of mounting.

   NOTE: The cooling-only thermostat must be connected to an interlock switch to prevent simultaneous operation of the furnace and the air conditioner. (See Figure 1.)

b. **Connect the Heat-Cool Thermostat:** The heat-cool thermostat is equipped with a system HEAT-COOL switch, which provides a positive means of preventing simultaneous operation of the heating and cooling units. The thermostat is also equipped with an ON-AUTO fan switch which allows the home owner to operate the indoor blower when air circulation is desired.

   Connect the red, yellow, green, and brown low voltage wires to the R or RC, Y, G, and W terminals respectively on the thermostat base. See thermostat instruction sheet for more detailed information.

   Refer to furnace installation instructions for required

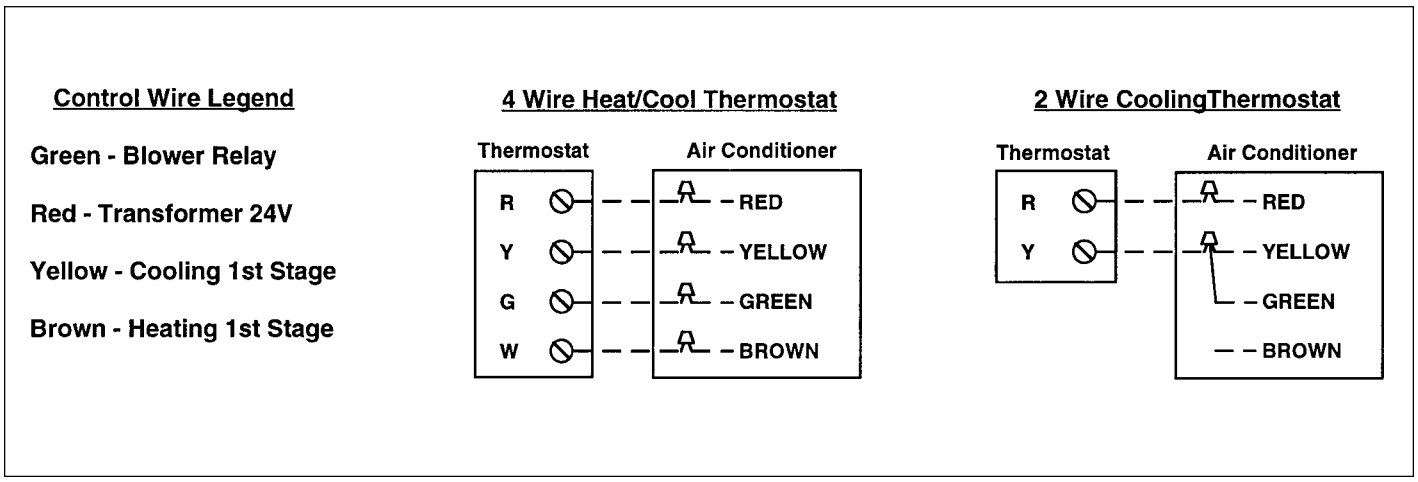


Figure 9. Low Voltage Connections

connections and proper heat anticipator setting when installing unit with an external furnace.

SYSTEM OPERATION

1. PRE-START CHECK LIST

The following check list should be observed prior to starting the unit.

- ☐ Is the unit level? It should be level or slightly slanted toward the drain for proper condensate drainage.
- ☐ Is there free air flow to and from the condenser? A one foot clearance around the coil, and six foot clearance above the fan?
- ☐ Is the wiring correct according to the wiring diagram and electrical codes?
- ☐ Are all the wiring connections tight? Check the condenser fan to make sure it turns freely.
- ☐ Is the overcurrent protection properly sized?
- ☐ Is the thermostat wired correctly? Is it installed in a proper location?

2. START-UP PROCEDURE

a. Set the system switch to the OFF position.

b. Dial thermostat setting as high as it will go.

c. Turn on power supply at the disconnect switch.

d. Set the system switch to ON or COOL. Set the temperature setting to below room temperature. Verify that the indoor blower is energized and that the compressor and outdoor fan are operating.

e. Verify that the discharge air grilles are adjusted and the system is balanced.

f. Verify that there are no air leaks in the duct work.

g. Verify that the condensate drain is properly installed and that it functions correctly.

h. Dial the thermostat higher than room temperature. The unit should stop.

i. If using a combination heating-cooling thermostat, set to the HEAT position. Proceed to check for correct furnace operation.

j. Verify that the furnace controls and burners or heating elements operate correctly.

k. Instruct the owner on unit operation, filter servicing, and proper thermostat operation.

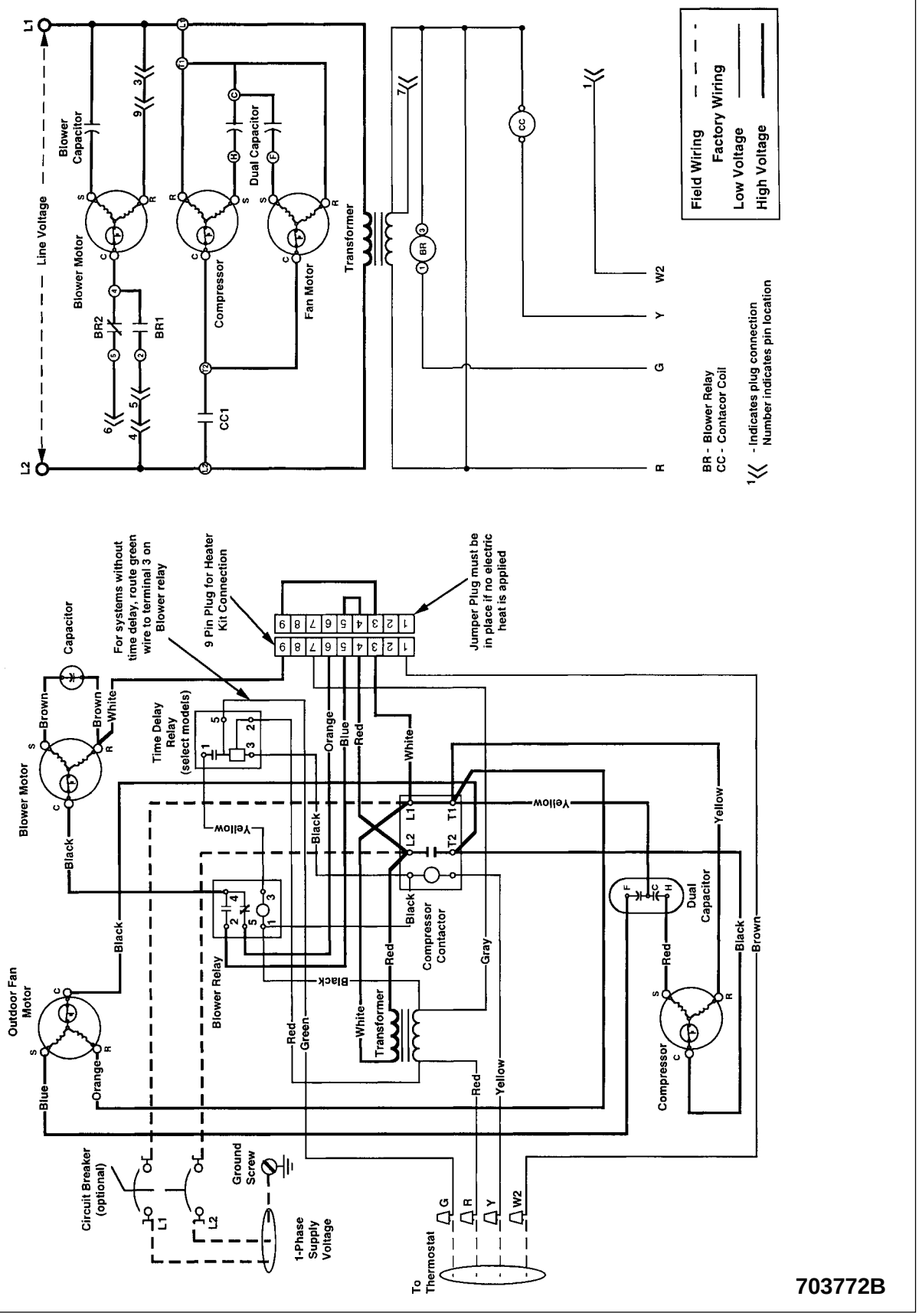


Figure 10. Single Phase Unit Wiring Diagram

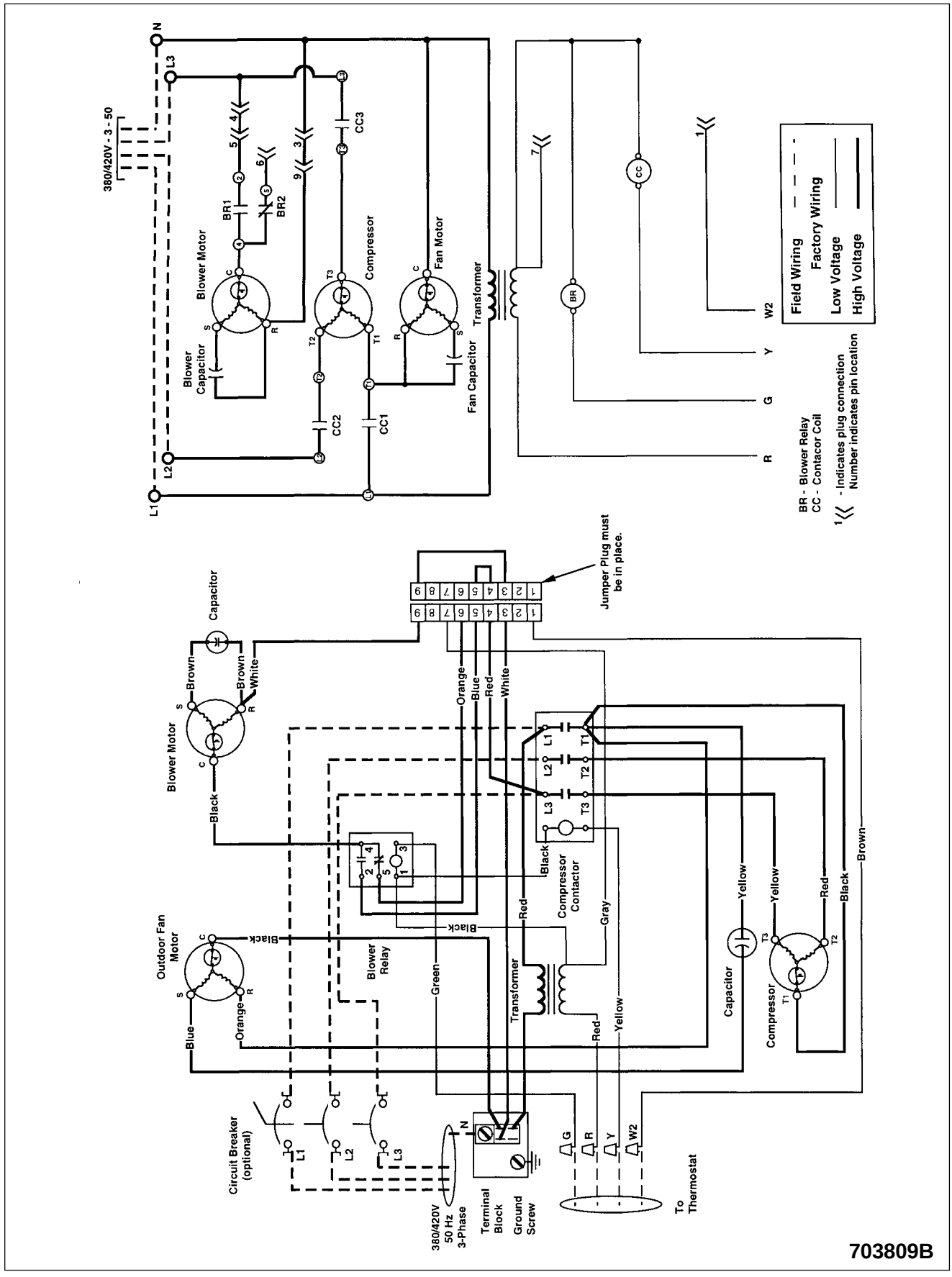


Figure 10. Three Phase 380V/420V Unit Wiring Diagram

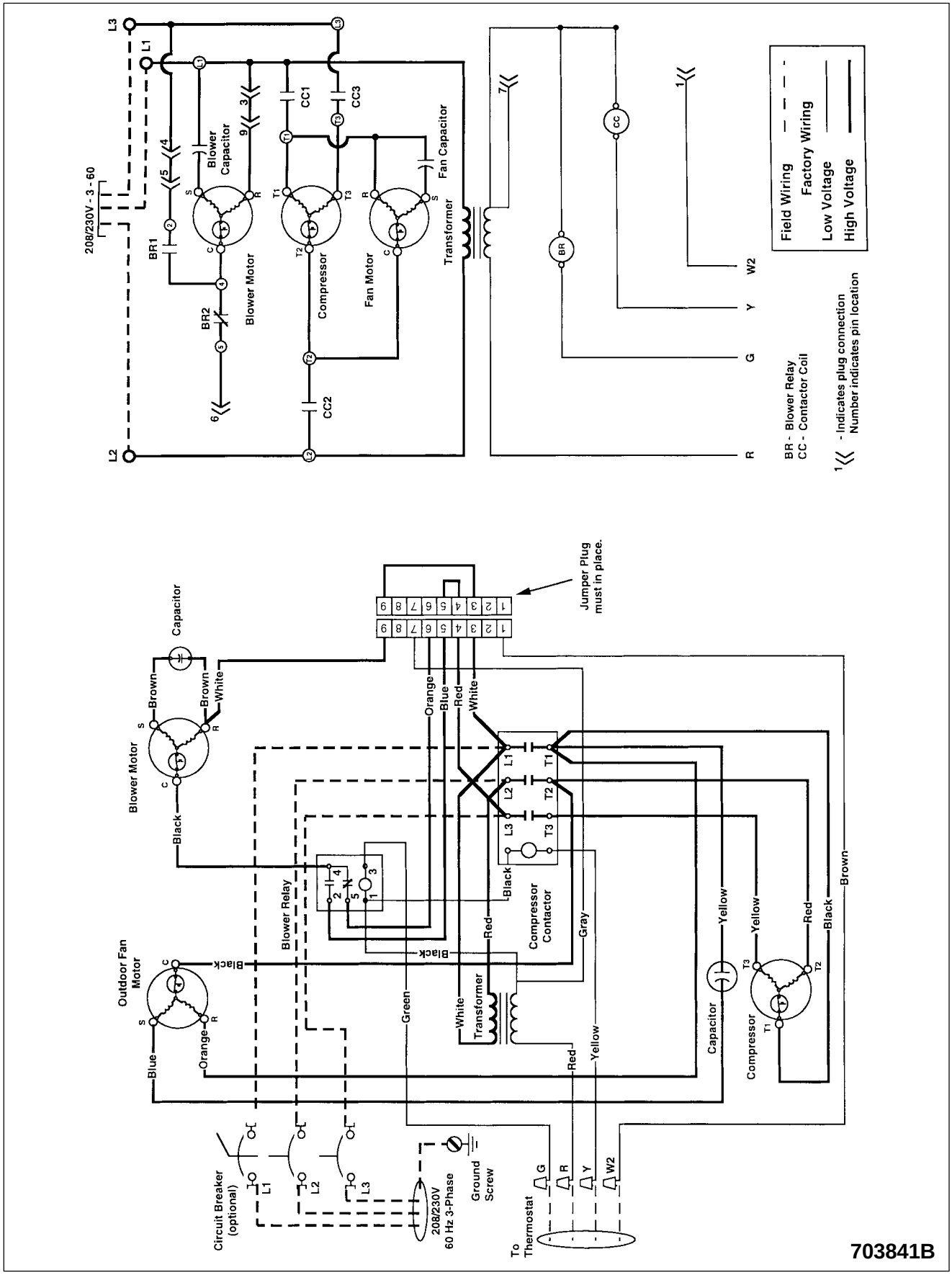


Figure 10. Three Phase 208/230V Unit Wiring Diagram

P3RX - Refrigerant Charging Tables

2 Ton

	OUTDOOR TEMPERATURE (°F)															
	70		75		80		85		90		95		100		105	
Suct. Press.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.
70	180	136														
72	183	141	196	142												
74	185	146	198	147	212	149										
76	185	155	201	152	214	153	228	155								
78	189	158	201	159	216	158	230	159	243	160						
80			205	162	218	164	232	164	245	165	259	166				
82					221	167	234	168	247	169	261	170	274	172		
84							237	172	250	173	263	175	276	176	290	177
86							241	176	254	177	266	179	278	180	292	181
88									257	181	270	183	282	184	294	184
90											273	187	286	188	299	189
92													289	193	302	194
94															305	198
96																

2-1/2 Ton

	OUTDOOR TEMPERATURE (°F)															
	70		75		80		85		90		95		100		105	
Suct. Press.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.
69	190	147														
71	193	152	207	152												
73	195	157	209	157	223	156										
75	196	165	211	162	225	161	239	161								
77	199	168	212	168	227	166	241	166	255	165						
79			216	171	229	171	243	170	257	170	271	169				
81					232	175	246	175	259	174	273	174	287	173		
83							249	178	262	178	275	178	289	177	303	177
85							252	182	266	182	279	182	291	181	305	181
87									269	186	282	186	295	186	307	185
89											286	190	299	190	312	190
91													302	194	315	194
93															319	199
95																

3 Ton

	OUTDOOR TEMPERATURE (°F)															
	70		75		80		85		90		95		100		105	
Suct. Press.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.
68	177	156														
70	180	161	198	161												
72	182	166	200	166	218	165										
74	184	173	202	171	220	170	238	170								
76	187	175	204	176	222	175	240	174	258	174						
78			208	179	224	179	242	179	260	178	278	178				
80					228	183	245	183	262	183	280	182	298	182		
82							248	187	265	187	282	186	300	186	318	186
84							252	190	269	191	285	190	302	190	320	190
86									272	194	289	195	306	194	322	194
88											292	199	309	199	326	198
90													313	203	329	203
92															333	207
94																

* Note: All pressures are listed in psig. and all temperatures in °F.

- Shaded Boxes indicate flooded conditions

- Rated Design Values. Suction Pressure will be lower than design value if indoor air flow, entering dry bulb, or entering wet bulb temperatures are lower than design.

- Discharge temperatures greater than charted values indicate an undercharged system.

P3RX - Refrigerant Charging Tables

3-1/2 Ton

	OUTDOOR TEMPERATURE (°F)															
	70		75		80		85		90		95		100		105	
Suct. Press	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.
68	195	148														
70	197	153	213	155												
72	199	159	216	160	232	161										
74	200	167	218	165	234	166	250	168								
76	204	170	219	172	236	171	252	172	268	174						
78			222	175	238	176	254	177	270	178	286	180				
80					241	180	256	182	272	183	288	184	304	186		
82							260	185	275	187	290	188	306	190	323	191
84							263	189	279	191	294	192	308	194	325	195
86									282	195	297	197	313	198	327	199
88											301	201	316	202	331	204
90													319	207	335	208
92															338	213
94																

4 Ton

	OUTDOOR TEMPERATURE (°F)															
	70		75		80		85		90		95		100		105	
Suct. Press	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.
68	195	148														
70	197	153	213	155												
72	199	159	216	160	232	161										
74	200	167	218	165	234	166	250	168								
76	204	170	219	172	236	171	252	172	268	174						
78			222	175	238	176	254	177	270	178	286	180				
80					241	180	256	182	272	183	288	184	304	186		
82							260	185	275	187	290	188	306	190	323	191
84							263	189	279	191	294	192	308	194	325	195
86									282	195	297	197	313	198	327	199
88											301	201	316	202	331	204
90													319	207	335	208
92															338	213
94																

5 Ton

	OUTDOOR TEMPERATURE (°F)															
	70		75		80		85		90		95		100		105	
Suct. Press	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.	Dis. Press.	Dis. Temp.
63	207	155														
65	209	160	224	161												
67	211	165	226	166	241	166										
69	211	175	228	171	243	171	259	172								
71	215	177	229	178	246	176	261	176	276	177						
73			233	181	247	181	263	181	278	181	293	182				
75					251	185	265	185	280	185	295	186	310	186		
77							268	189	283	190	297	190	312	190	327	191
79							272	193	286	193	300	194	314	194	329	195
81									290	197	304	198	318	199	331	198
83											307	202	322	203	336	204
85													325	207	339	208
87															343	212
89																

* Note: All pressures are listed in psig. and all temperatures in °F.

- Shaded Boxes indicate flooded conditions

- Rated Design Values. Suction Pressure will be lower than design value if indoor air flow, entering dry bulb, or entering wet bulb temperatures are lower than design.

- Discharge temperatures greater than charted values indicate an undercharged system.

INSTALLER

PLEASE LEAVE THESE INSTALLATION INSTRUCTIONS WITH THE HOMEOWNER.

St. Louis, MO | NORDYNE

707633C

707633C (Replaces 707633B)

Specifications and illustrations subject to change without notice and without incurring obligations.
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